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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,916	02/17/2005	Kouji Nomura	101621-15	2985

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EXAMINER
GOFF II, JOHN L

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,916	NOMURA ET AL.	
	Examiner	Art Unit	
	John L. Goff	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 and 7-12* is/are pending in the application.

4a) Of the above claim(s) *7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 and 9-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/19/09 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claims 2 and 9-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 2 as amended requires "at least one of the pair of rollers has a surface with an uneven pattern which is included within a 10 mm-diameter circle". It is unclear what is required by an uneven pattern. Applicants argue Example 5 is evidence of unexpected results regarding the use of an uneven pattern. However, Example 5 uses a pair of rollers having a surface with a stripe pattern with a width of 0.5 mm. There is no description that the stripe pattern is uneven. It appears applicants are using the language uneven pattern to require other than a smooth roller,

e.g. a roller with a raised pattern, and this is the interpretation give the claim. If this interpretation is consistent with applicants the rejection will be withdrawn.

Claim Rejections - 35 USC § 103

5. Claims 2 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al. (JP 02053968 and see the abstracts) in view of either one of Newkirk et al. (U.S. Patent 5,143,779) or Coates et al. (U.S. Patent 3,291,677) and Schmidt (U.S. Patent 7,195,810) and Tsuchiya et al. (U.S. Patent 5,962,068).

Harada discloses a process for manufacturing a water-absorbing composite for example for a diaper comprising providing a nonwoven fibrous substrate, heat-embossing, i.e. thermo-compressing, the nonwoven substrate to form an uneven pattern on the substrate, applying a monomer coating containing acrylic acid and/or its salt to the substrate, and polymerizing the monomer coating to form a water-absorbing composite in which water-absorbing resin particles adhere to the fiber constituting the nonwoven fibrous substrate (See the abstracts).

It is unclear if Harada teaches the nonwoven fibrous substrate is heat-raised, it being noted Harada is simply silent as to further description of the substrate. It was known in the art of providing a nonwoven fibrous substrate to a process for manufacturing for example a diaper that the substrate is compacted during storing and shipping and heat-raised at the process for manufacturing such that the substrate is easy to handle and conveniently transported as provided to the process for manufacturing as shown by either one of Newkirk or Coates (Column 1, lines 5-14 and Column 6, lines 62-68 and Column 7, lines 1-28 of Newkirk and Column 1, lines 20-25 and Column 2, lines 34-45 of Coates). It would have been obvious to one of ordinary skill in the

art at the time the invention was made to use as the nonwoven fibrous substrate in Harada a heat-raised nonwoven fibrous substrate well taken in the art as easy to handle and conveniently transported as provided to a process of manufacturing of the type taught by Harada as suggested by either one of Newkirk or Coates.

It is unclear if Harada teaches the thermo-compressing occurs before of after the polymerizing step. However, there are only three possibilities, e.g. thermo-compressing occurs before, after, or simultaneous with the polymerizing. Applicants have shown no unexpected results for performing the thermo-compress after the polymerizing. Schmidt directed to a similar process of manufacturing a water-absorbing composite for example for a diaper including a step of thermo-compressing a substrate including water-absorbent particles formed of acrylic acid and/or its salt as part of a polymerizable composition teach the particles are included within the substrate and the composition polymerized either before or after the step of thermo-compressing (Column 4, lines 7-10 and 40-45 and Column 6, lines 51-67 and Column 8, lines 33-36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the thermo-compressing as taught by Harada after the polymerizing step as there are only three possibilities, applicants have shown no unexpected results for any particular order, and Schmidt evidences that performing the thermo-compressing after polymerizing is an equivalent alternative to polymerizing after thermo-compressing both achieving the expected result.

It is unclear if Harada teaches the monomer coating is applied as an aqueous spray, it being noted Harada is not considered limited to any particular application technique. Tsuchiya similarly directed to a process for manufacturing a water-absorbing composite such as for a

diaper teach spraying an aqueous monomer solution containing acrylic acid and/or its salt on a nonwoven fibrous substrate to apply droplets of the aqueous monomer solution on the fiber constituting the substrate and polymerizing the monomers in the droplets to form a water-absorbing composite in which water-absorbing resin particles adhere to the fiber constituting the substrate (Column 1, lines 19-23 and Column 4, lines 45-56 and Column 6, lines 31-35 and Column 8, lines 43-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the monomer coating as taught by Harada as was known as suitable for forming the same product as shown by Tsuchiya only the expected results being achieved.

It is unclear if Harada teaches the embossing occurs by passing the substrate between a pair of rollers wherein at least one of the rollers has a surface with an uneven pattern which is included within a 10 mm diameter circle and is two dimensionally repeated with an interval of 1-5 mm, it being noted Harada is not limited to any particular embossing pattern and suggests stripes. Schmidt directed to a similar process of manufacturing a water-absorbing composite for example for a diaper including a step of thermo-compressing a substrate including water-absorbent particles teaches the thermo-compressing is performed using a pair of embossing rollers wherein at least one of the rollers has a surface with an uneven pattern which is included with a 10 mm diameter circle and is two dimensionally repeated with an interval of 0.1 in., 0.2 in., etc. Schmidt teaches this particular embossing pattern enhances fluid distribution in the substrate (Figures 2 and 3 and Column 1, lines 9-13 and Column 3, lines 13-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the heat embossing as taught by Harada using the pair of rollers shown by Schmidt having a surface

with an uneven pattern that is two dimensionally repeated with an interval of 0.1 or 0.2 inches to enhance fluid distribution in the substrate. It is noted any roller with an uneven pattern has a surface included within a 10 mm diameter circle as the claim does not preclude the pattern from extending beyond the 10 mm diameter circle wherein the roller taught by Schmidt having an uneven pattern having a surface with a width of 0.015 to 0.35 inches meets the claim limitation.

Regarding claims 9 and 10, Tsuchiya teaches the amount of water-absorbing resin particles adhering to the fibrous substrate is 10 to 500 g/m^2 (Column 9, lines 36-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimal amount of water-absorbing resin particles in Harada as modified by Tsuchiya within the known range suggested by Tsuchiya as a function of the water-absorptive properties of the composite.

Regarding claim 11, Harada and Tsuchiya teach the monomer coating includes a crosslinking agent (See abstracts of Harada and Column 5, lines 40-58 of Tsuchiya) wherein it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the amount of crosslinking agent in the coating as a function of adequately crosslinking the monomers wherein because the monomers taught by Harada as modified by Tsuchiya are the same as those used by applicants one would expect the amount of crosslinking agent to be the same.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada, Newkirk or Coates, and Schmidt and Tsuchiya as applied to claims 2 and 9-11 above, and further in view of Shiba et al. (U.S. Patent 4,652,484).

Harada, Newkirk or Coates, and Schmidt and Tsuchiya as applied above teach all of the limitations in claim 12 except for a specific teaching of the tensile strength of the nonwoven fabric. Shiba are exemplary of a nonwoven fabric for water-absorbing composites such as a diaper having a tensile strength of 250 g/25mm sufficient to resist breakage during use (Column 2, lines 41-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the tensile strength of the nonwoven fabric in Harada as modified by Newkirk or Coates and Schmidt and Tsuchiya as a function of the desired strength of the composite wherein nonwovens with tensile strengths of 250 g/25 mm are considered sufficient to resist breakage during use as shown by Shiba.

7. Claims 2 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya in view of either one of Newkirk or Coates and Schmidt.

Tsuchiya discloses a process for manufacturing a water-absorbing composite such as for a diaper including spraying an aqueous monomer solution containing acrylic acid and/or its salt on a nonwoven fibrous substrate to apply droplets of the aqueous monomer solution on the fiber constituting the substrate and polymerizing the monomers in the droplets to form a water-absorbing composite in which water-absorbing resin particles adhere to the fiber constituting the substrate (Column 1, lines 19-23 and Column 4, lines 45-56 and Column 6, lines 31-35 and Column 8, lines 43-46). Tsuchiya does not specifically teach the nonwoven fibrous substrate is heat-raised. It is well known in the art of providing a nonwoven fibrous substrate to a process

for manufacturing for example a diaper or sanitary napkin that the substrate is compacted during storing and shipping and heat-raised at the process for manufacturing such that the substrate is easy to handle and conveniently transported as provided to the process for manufacturing as shown by either one of Newkirk or Coates (Column 1, lines 5-14 and Column 6, lines 62-68 and Column 7, lines 1-28 of Newkirk and Column 1, lines 20-25 and Column 2, lines 34-45 of Coates). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the nonwoven fibrous substrate in Tsuchiya a heat-raised nonwoven fibrous substrate well taken in the art as easy to handle and conveniently transported as provided to a process of manufacturing of the type taught by Tsuchiya as suggested by either one of Newkirk or Coates.

Tsuchiya does not specifically teach thermo-compressing the water-absorbing composite by passing the water-absorbing composite between a pair of rollers, wherein at least one of the pair of rollers has a surface with an uneven pattern which is included with a 10 mm diameter circle and is two dimensionally repeated with an interval of 1-5 mm, it being noted Tsuchiya teach known finishing steps such as shaping the composite are performed (Column 8, lines 40-49). Schmidt directed to a similar process of manufacturing a water-absorbing composite for example for a diaper teaches forming a fibrous, unwoven substrate including water-absorbent particles and thermo-compressing the substrate using a pair of embossing rollers wherein at least one of the rollers has a surface with an uneven pattern which is included with a 10 mm diameter circle and is two dimensionally repeated with an interval of 0.1 in., 0.2 in., etc. Schmidt teaches thermo-compressing the substrate enhances fluid distribution in the substrate (Figures 2 and 3 and Column 1, lines 9-13 and Column 3, lines 13-22). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include in Tsuchiya a thermo-compressing finishing operation for enhancing fluid distribution in the composite as shown by Schmidt. It is noted any roller with an uneven pattern has a surface included within a 10 mm diameter circle as the claim does not preclude the pattern from extending beyond the 10 mm diameter circle wherein the roller taught by Schmidt having an uneven pattern having a surface with a width of 0.015 to 0.35 inches meets the claim limitation.

Regarding claims 9 and 10, Tsuchiya teaches the amount of water-absorbing resin particles adhering to the fibrous substrate is 10 to 500 g/m^2 (Column 9, lines 36-38) wherein it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimal amount within this range as a function of the water-absorptive properties of the composite.

Regarding claim 11, Tsuchiya teaches the aqueous monomer solution includes a crosslinking agent (Column 5, lines 40-58) wherein it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the amount of crosslinking agent in the solution as a function of adequately crosslinking the monomers wherein because the monomers taught by Tsuchiya are the same as those used by applicants one would expect the amount of crosslinking agent to be the same.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya, Newkirk or Coates and Schmidt as applied to claims 2 and 9-11 above, and further in view of Shiba.

Tsuchiya, Newkirk or Coates and Schmidt as applied above teach all of the limitations in claim 12 except for a specific teaching of the tensile strength of the nonwoven fabric. Shiba are

exemplary of a nonwoven fabric for water-absorbing composites such as a diaper or sanitary napkin having a tensile strength of 250 g/25mm sufficient to resist breakage during use (Column 2, lines 41-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the tensile strength of the nonwoven fabric in Tsuchiya as modified by Newkirk or Coates and Schmidt as a function of the desired strength of the composite wherein nonwovens with tensile strengths of 250 g/25 mm are considered sufficient to resist breakage during use as shown by Shiba.

Response to Arguments

9. Applicant's arguments with respect to claims 2 and 9-12 have been considered but are moot in view of the new ground(s) of rejection.

In view of applicants amendment the previous 35 USC 112 rejections have been withdrawn. The new limitations are addressed above.

Applicants argue, "Table 3 indicates that the artificial urine permeation rate of the water-absorbing composite of Example 5 is 1,8 seconds which is an unexpected and superior improvement when compared to the water-absorbing composite of Example 4 having an artificial urine permeation rate of 2.3 seconds.".

The results are not commensurate in scope with that claimed. The claims do not require a pair of rollers including a stripe pattern with a width of 0.5 mm, an interval of 3 mm, and a depth of 0.4 mm as in Example 5. Further Example 5 demonstrates an embossing pattern is superior to no pattern at all. Harada specifically teach heat-embossing a pattern such that the results of Example 5 are insufficient to overcome the rejections including Harada. Schmidt specifically

teaches a heat-embossing pattern enhances fluid distribution in a water-absorbing composite such that the results are not unexpected and insufficient to overcome the rejections including Schmidt.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571)272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John L. Goff/
Primary Examiner, Art Unit 1791